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CARR, TELLIS, L., MAJ, MS

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14. ABSTRACT

The subject of this business case analysis is to evaluate the likely costs and benefits of implementing a scrub management system at Brooke Army Medical Center (BAMC). The scrub management system would track the use, loss, location, and inventory of scrubs. The annual laundering cost for scrubs at BAMC is $76,322. Thus, the medical facility spends approximately $146,133 on annual scrub wear. In addition, the Environmental Service Branch cannot monitor the usage and inventory of scrubs on a daily basis. The projected costs of implementing scenario two resulted in a net present value (NPV) of $142K and a return on investment (ROI) of 36.4% over five years . The projected costs and revenues associated with scenario one resulted in a NPV of -$730.7K and a ROI of -100% over five years. Based on the financial results and projections, the recommendation is to implement scenario two.

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U	U	U	UU	49	19b. TELEPHONE NUMBER *(Include area code)* (210) 221-6443

Army-Baylor University Graduate Program in Health and Business Administration

A Business Case Analysis to determine the feasibility of a Scrub Management System at Brooke Army Medical Center

Graduate Management Project

Presented to

COL David A. Bitterman, Deputy Commander for Administration,

Brooke Army Medical Center, Preceptor

MAJ Eric R. Schmacker, Reader

In partial fulfillment of Masters of Healtheare Administration

By Tellis L. Carr, MAJ, MS

Ft Sam Houston, TX

March 7, 2009

Disclaimer

The views expressed in this Graduate Management Project are those of the author and do not reflect the official policy or position of Brooke Army Medical Center, the Army Medical Department (AMEDD) Center and School, Baylor University, or the Department of Army.

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I would like to thank a number of people who assisted with the completion of my Graduate Management Project. I would first like to thank Mr. Dennis Kemp, Linen Services for his assistance in gathering data. I would like to thank Elaine Davis, Chief, Patient Safety and Risk Management for providing the policy pertaining to scrub wear. I would also like to thank Helen Crouch, Director, Infection Prevention and Control for providing insight on the wear of scrubs. I would like to thank Major Daniel Fisher for his remarks and proofreading. Finally, I would like to thank Kevin Book, Medical Command Headquarters for providing his support with the financial calculations.

TABLE OF CONTENTS

List of Tables

List of Figures

EXECUTIVE SUMMARY

The purpose of this business case analysis is to examine the practicability of implementing a scrub management system at Brooke Army Medical Center (BAMC), Fort Sam Houston, Texas. This system is in support of the following business objectives:

1. Reduce scrub replacement cost by limiting access to only authorized users and controlling the number of scrubs issued to authorized users.
2. Reduce laundering cost by reducing clean scrubs inadvertently placed in the soiled linen return cart.
3. Improve inventory accuracy through an automated system that tracks scrubs by user and levels at each department.

This case is designed to provide members of the BAMC Executive Committee with the necessary financial projections, financial metrics, and assessment of contingencies and risks to support a decision to accept or not accept the implementation of a scrub management system. The business case evaluated the objectives through two scenarios. Scenario one, the current process involved evaluating the cost of forgoing a scrub management system. Scenario two involved implementing a scrub management system.

For the last 5 years, scrubs loss has been in the top five for linen items either lost or stolen from BAMC. Over the previous 5 years, the Environmental Service Branch spent an average of $77,895 annually to replace the loss. The annual laundering cost for scrubs at BAMC is $76,322. Thus, the facility spends approximately $146,133 on annual scrub wear. In addition,

the Environmental Service Branch cannot monitor the usage and inventory of scrubs on a daily basis. The projected costs of implementing scenario two resulted in a net present value (NPV) of $142K and a return on investment (ROI) of 36.4% over five years. The projected costs and revenues associated with scenario one resulted in a NPV of -$730.7K and a ROI of -100% over five years. Based on the financial results and projections, the recommendation is to implement scenario two.

INTRODUCTION

Brooke Army Medical Center, also known as San Antonio Military Medical Center (SAMMC) – North, is a 450-bed medical treatment facility located on Fort Sam Houston, approximately six miles northeast of downtown San Antonio, Texas. BAMC is a teaching facility and includes the Center for Intrepid and Army Burn Center. In addition, BAMC is the only Level I Trauma center in the U.S. Army Medical Command (MEDCOM) and is part of the Great Plains Regional Medical Command.

Scrub use is one of many linen items essential for the day-to-day patient care operations in a treatment facility. Short sleeve shirts, trousers, gowns, and caps are garments commonly referred to as scrubs. The spread of Multidrug-resistant organisms (MRDOs), which include Methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE) and gram-negative bacilli (GNB), has increased the usage of scrubs in many areas of a hospital. Thus, facilities should always know whether they have enough scrubs to perform the daily patient care operations as part of a comprehensive infection control program.

The Environmental Service Branch is responsible for laundering and supplying the linen in most of the United States Army's Medical Treatment Facilities (MTF). The majority of the Army's MTFs hire a contractor to launder all soiled linen. The contractors are responsible for laundering and replenishing the linen to the Environmental Service Branch. The Environmental Service Branch maintains responsibility for stocking and distributing linen throughout the facility.

Brooke Army Medical Center has been plagued with the replacement cost associated with scrub loss. Scrubs as well as other linen in the inventory gradually disappear from facilities. One explanation for the loss is pilfering. Another explanation is from users stockpiling scrubs in

personal lockers. Facilities have tried to implement various methods, such as stamping the logo of the facility to maintain their inventory of scrubs. However, the stamping of logos did not prevent the loss of linen (Moradi, Rowe, & Washington, 1999) . A potential solution is the implementation of a scrub management system, a system designed to control most cases of scrub loss such as unauthorized use, inappropriate use, hoarding, and vendor lost.

Background

The wearing of scrubs has extended past health care providers in a surgical environment. The Occupational Health and Safety Administration (OSHA) does not have any laws or regulations governing scrub wear because scrubs are not considered personal protective equipment. BAMC Memorandum Number 32-2, Clothing and Textile Material, addresses the facility's current policy for scrub apparel. The memorandum designates the areas approved for issuing of scrub apparel (see appendix A). Elaine Davis, Chief, Patient Safety Service, BAMC, stated that The Joint Commission does not address scrub wear in a medical facility (personal communication, January 20, 2009). Helen Crouch, Chief, Infection Control, BAMC, believes that hospitals will eventually end up going to an "all scrub" policy due to increasing MDRO attention with the media (personal communication, November 19, 2008).

Currently, scrubs are readily available to authorized and unauthorized users with access to a locker room or linen storage area. The Environmental Service Branch currently delivers scrubs wrapped in bundles of ten by the contractor to these areas via carts. Users can retrieve a pair of scrubs by opening up a shirt and trouser bundle that contains the appropriate size. The carts and bundles can quickly become unorganized after a couple of users have opened up bundles searching for a pair of scrubs. This disorganization can lead to clean scrubs being mistaken for dirty scrubs or becoming dirty after falling on the floor. Some employees may store

clean or dirty scrubs in a locker and thus the scrubs fall out of the linen circulation. The lack of accountability may lead to users throwing scrubs away or taking them home. The contractor (vendor) may lose scrubs during the laundering process. Figure 1 displays many points that can result in lost scrubs.

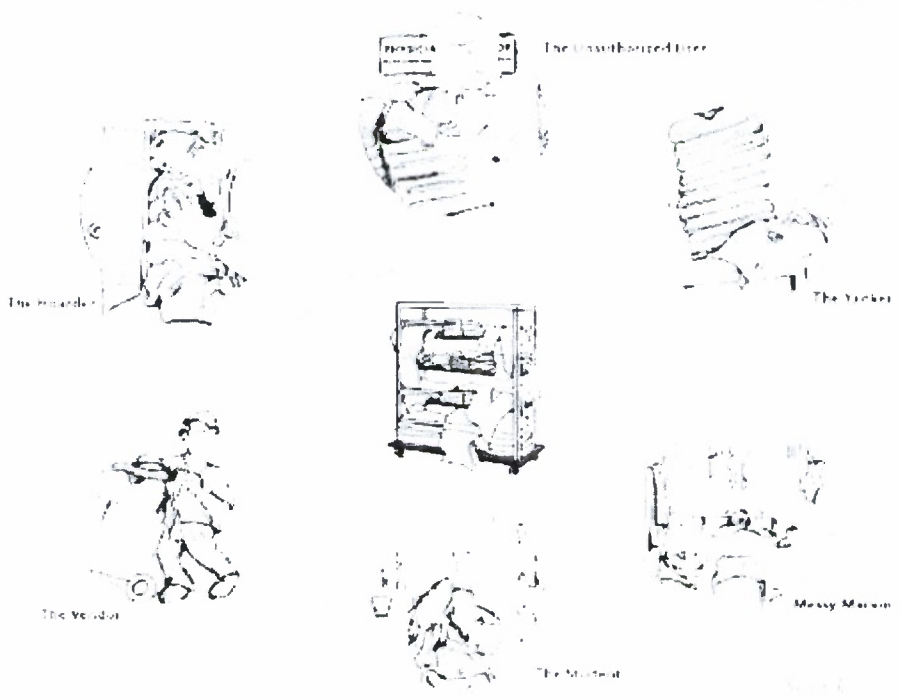

Figure 1. Scrub Vicious Circle

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Once carts become unorganized, some users may be reluctant to wear scrubs that are not neatly on the shelf or still wrapped in a bundle. This causes the facility to waste money on unnecessary laundering.

The annual scrub wear cost is comprised of replacement and laundering cost. A 500-bed healthcare facility can spend up to $100,000 every year on annual scrub wear cost (Strenger,

1995). The replacement cost consists of scrubs replaced due to loss and normal wear. The cost for a scrub shirt or trouser ranges from $3.70 to $5.55 each (see Appendix B). The cost is dependent upon the size of the shirt or trouser. For the last three years, scrubs loss has been one of the top two expenses for missing items at BAMC, ranking #1, two of three years (see Appendix C). The Environmental Service Branch spent an average of $69,811 each year to replace the loss due to unknown loss and wear and tear loss. The laundering cost for scrubs depends on the number of daily users. BAMC currently uses over 8,000 scrubs a week. Table 1 shows the current daily use of scrubs.

Table 1

Daily Scrub Usage at BAMC

Department/Floor	Qty Used (Daily)	# of Days Per Week	Total (Per Week)
Operating Room	520	7	3,640
Emergency Room	130	7	910
Post Anesthesia Care Unit	60	5	300
Catheterization Lab	60	5	300
4 East	90	7	630
4 South/North	250	7	1,750
Central Material Services (CMS)	135	5	635
Total	1,245		8,205

The linen department and contractor (vendor) account for soiled linen by weight. Soiled scrubs and other soiled linen make up the total weight laundered by the contractor. The cost to launder a scrub set (shirt and trousers) is $0.51. The annual laundering cost for BAMC is $76,322. Thus, the facility spends approximately $146,133 on scrub wear annually.

A scrub management system consists of dispensing and return units along with the software to manage scrub levels via Ethernet. The system provides hospitals with the capability to manage inventory, track users, and print reports that help track shipping and receiving of scrubs from laundry service. The use of an automated system alerts suppliers when dispensing and return units are below refill, critically low, and full of soiled scrubs. The computerized tracking identifies problem areas and establishes detailed steps to reduce waste throughout a

facility ("Linen cost lowered," 1997). The data obtained from software in a scrub management system allows managers to make informed decisions. For example, the use of a computerized linen management system allowed a 500-bed facility to lower linen use from 32.52 pounds to 25.68 pounds per patient day, saving $20,000 a year (Strenger, 1995). The data allowed users to anticipate linen usage patterns, which led to new practices (Strenger, 1995). As a result, the system reduces over stocking and unnecessary trips to check scrub inventory levels.

Scrub management systems can reduce annual scrub wear cost by reducing the number of scrubs purchased and reducing the laundering cost associated with laundering clean scrubs and scrubs used by unauthorized users. Healthcare facilities spend a considerable amount of funds purchasing scrubs to replace those not returned to the linen department. Donnell Williams, Linen specialist, at Womack Army Medical Center stated that the scrub management system reduced the number of scrubs not returned to the linen department (personal communication, March 18, 2009). Scrub management systems ensure only authorized users have access to scrubs, assure availability of proper size, and control volume, as the user must return the scrubs prior to obtaining another set. By eliminating the usage from unauthorized users, a healthcare facility can reduce loss and laundering cost.

Subject of the business case

The subject of this business case analysis is to evaluate the likely costs and benefits of implementing a scrub management system at BAMC. The scrub management system would track the use, loss, location, and inventory of scrubs. The Environmental Services Branch currently supplies an average of 604 scrub sets (shirt and bottom) on a daily basis throughout the facility (Dennis Kemp, personal communication, March 11, 2009). The abundance of scrubs is required to ensure authorized users have access to scrubs. In contrast, the current lack of control

allows unauthorized users access to scrubs. Authorized and unauthorized users can obtain as many scrubs as they like without returning them. This may cause the facility to spend unnecessary amounts of funds on replacement and laundering cost.

Purpose of the business case

The purpose of this business case analysis is to provide the BAMC Commander, Deputy Commander of Administration, and Chief, Logistics Division with the necessary financial projections, financial metrics, and sensitivities to support a decision to accept or not accept the implementation of a scrub management system at BAMC.

Governing Mandates

Department of Defense Information Assurance Certification and Accreditation Process (DIACAP), which replaced Department of Defense Information Technology Security Certification & Accreditation Process (DITSCAP), establishes the certification and accreditation process for the Department of Defense(DOD) information systems. The scrub management system is considered an information system, which cannot operate on the DOD information system if it is not accredited. There are MTFs currently utilizing a linen management or scrub management system. Therefore, if the decision is made to implement the system, the manufacturer can use the current certification and accreditation at BAMC. Kevin Martin, Information Assurance Manager, BAMC stated that the system would need a certificate of networthiness (personal communication, March 11, 2009). The certificate ensures the system's applications are approved to operate on BAMC's network.

METHODS AND ASSUMPTIONS

Scenario and data

Scenario one involves maintaining BAMC's current business model. Under the current business model, BAMC does not have a scrub tracking system. The cart in each locker room or linen storage area may continue to have scrub sizes not utilized by authorized users. In addition, unauthorized users may take scrubs from the locker room or line storage area. Clean scrubs may continue to end up inappropriately in the soiled linen cart/bin leading to higher laundering cost. The Environmental Service Branch would continue to lack accountability of the number of scrubs throughout the facility. A physical inventory is time and labor intensive. The lack of accountability and systematic stocking leads to a continuous rise in the requirement to replace scrubs. Table 2 shows the percentage of scrub lost (unknown loss and wear and tear loss) and the revenue spent to replace lost scrubs from November 4, 2007 to November 12, 2008.

Table 2

Scrub Expenditures for 2008

Description	Unknown lost %	Wear/Tear lost %	Price	Purchases	Cost
Shirt OR 2XL	20%	4%	$4.44	792	$3,156.48
Shirt OR 3XL	21%	3%	$4.81	792	$3,809.52
Shirt OR 4XL	6%	< 1%	$5.18	264	$1,367.52
Shirt OR 5XL	0%	< 1%	$5.55	264	$1,465.20
Shirt OR L	48%	20%	$3.70	2,112	$7,814.40
Shirt OR M	31%	17%	$3.70	2,112	$7,814.40
Shirt OR S	32%	17%	$3.70	528	$1,953.60
Shirt OR XL	47%	23%	$3.70	3,012	$11,144.40
Trouser OR 2XL	26%	4%	$4.44	792	$3,516.48
Trouser OR 3XL	4%	1%	$5.18	792	$4,102.56
Trouser OR 4XL	7%	No data	$5.18	288	$1,491.84
Trouser OR 5XL	0%	No data	$5.55	264	$1,465.20
Trouser OR L	41%	8%	$3.70	2,112	$7,814.40
Trouser OR M	25%	8%	$3.70	2,112	$7,814.40
Trouser OR S	25%	7%	$3.70	480	$1,776.00
Trouser OR XL	67%	14%	$3.70	3,000	$11,100
		Total			77,966.40

Under scenario two, BAMC would procure a scrub management system to reduce the annual scrub loss and laundering cost. Most importantly, the facility can monitor the usage, security and track inventory, which provides data to make informed decisions. One such informed decision could be changing stock distribution based on historical scrub use. Departments would have the appropriate size and amount of scrubs in the proper location when needed based on information provided by the scrub management system.

Scope of the Case

The business case analysis covered a period of five years, beginning 1 October 2009. The scrub management system directly affects users of scrubs within BAMC. The scrub management units would be strategically located throughout the facility to accommodate the intended users according to BAMC Memorandum 32-2. The units will not affect the non-user. Non-users not in the system would have the ability to sign out scrubs from Environmental Service Branch, allowing for monitoring and tracking outside of the scrub management system.

Financial Metrics

The financial metrics used in this business case analysis include annual and cumulative cash flows, net present value (NPV), return on investment (ROI), and payback period.

Net Present Value (NPV)

Net Present Value is a profitability measure that uses the discounted cash flow technique (Gapenski, 2003). The discounted cash flow value is 2.3% and was the default selection for the AMEDD Generic Business Case Analysis Tool (K. Book, personal communication, November 6, 2008). A positive NPV indicates that the investment will benefit the organization.

Simple Return on Investment

Return on Investment is the percentage of money gained or lost on an investment relative to the amount of money invested (Gapenski, 2003). ROI values above 0% signify a net gain from the investment and values below 0% signify a net loss from the investment.

Payback Period

Payback period determines the number of years required to recover the initial investment costs from expected cash flows without consideration for the time value of money (Gapenski, 2003). Despite this inherent weakness, many decision makers rely on the payback period as an important metric.

Benefits

The benefits resulting from the scrub management system are both tangible and intangible. The tangible benefits, measured in financial terms, display the potential savings to the organization. The data will show the cost avoidance of money spent on scrub replacement cost and laundering. The intangible benefits are not quantifiable in financial terms. However, the intangible benefits are just as important. The intangible benefits include time and morale saved by not having to search for the correct scrub size.

Costs

The manufacturer offers different sizes and variations of dispenser/receiver machines at a government cost. (Appendix D). The first size is a Large Volume (LV) Dispenser /Receiver Unit at $56,591. The LV is also available in separate units. The LV dispenser price is $38,428 and the LV receiver price is $24,473. The LV unit can accommodate 80 to 90 users on a daily basis. The second size is a Medium Volume (MV) Dispenser/Receiver Unit at $41,999. The MV accommodates 60-65 users on a daily basis. The MV unit is not available as separate units.

Finally, the third size is a Small Volume (SV) Dispenser/Receiver Unit at $27,854. The SV accommodates 30 users. The SV is also only available as a combined unit. Table 3 shows the location, quantity, unit type, and prices to accommodate BAMC's projected scrub needs according to BAMC Memorandum 32-2. These areas selected accommodate current scrub use. Table 4 itemizes the cost utilization in Scenario two. The laundering cost equals 604 sets per day times 365 Days per year times $0.51 per set (shirt and trouser). The replacement cost is the average from the last three years.

Table 3

Scenario 2 Purchase Cost

Department/Floor	Dispenser/Receiver	Government Price
Operating Room (OR)	1 Large Volume (LV) Dispenser	$38,428
OR Male & Female Locker Rooms	2 LV Receivers	Two at $24,473 each $48,946
Emergency Room	1 LV Dispenser/Receiver Unit	$56,591
Post Anesthesia Care Unit (PACU)	1 Medium Volume (MV) Dispenser/Receiver Unit	$41,199
4th Floor North/South	1 MV Dispenser Receiver Unit	$41,199
4th Floor East	1 MV Dispenser/Receiver Unit	$41,199
Central Material Services	1 Small Volume (SV) Receiver Unit	$27,854
Clinic Entrance	1 MV Dispenser/Receiver Unit	$41,199
Bed Tower Entrance	1 MV Dispenser/Receiver Unit	$41,199
Linen Services System Master Kit		$4,929
	Total Equipment	$382,743
Pre-Installation, Installation, Start-up and Training		$8,150
	Total Purchase Cost	$390,893

Table 4

Costs for scenario 2

Description	Cost
Equipment(Dispenser/Receiver Unit)	$382, 743
Installation expense	$8,150
Laundering	$30,528.60
Scrub Savings	$61,661

The cost incurred for the scrub management system would result from capital required to purchased or lease the scrub management units, training, installation, and software. The server room has adequate server space to accommodate the scrub management system (C. Meiners, personal communication, March 11, 2009).

Major assumptions

- Laundering and scrub cost remain constant
- Authorized user levels remain constant
- Locker rooms and linen closets have adequate space to accommodate dispenser/ receiver unit
- Environmental Service Branch has adequate staff to adjust to changes in scrub standard operating procedures
- Biomedical Equipment Specialist and/or the Information Management Division (IMD) can maintain equipment and software after warranty without additional staffing or cost
- Operation of the system will not require any additional supplies

BUSINESS IMPACTS

Benefits

- Ensure only authorized users receives scrubs and their size is available
- Reduce scrub loss and laundering costs
- Keep locker rooms neat and fresh scrubs clean
- Linen Services can monitor usage and inventory
- Proactively anticipate low-inventory situations through automated system alerts and notifications
- Improve workflow efficiency
- Chiefs/Managers can make more informed decisions with actual usage data

Costs

The purchase of the scrub management includes warranty for one year on parts and labor. The manufacturer offers full service, planned maintenance or service school programs. During the pre-installation, installation, start-up and training, the manufacturer trains designated personnel how to troubleshoot the dispenser/receiver units and provides spare parts. In addition, the manufacturer provides customer support for the life of the equipment. The average life span of a dispenser/receiver unit is fifteen years. In the event of a maintenance problem, the manufacturer's technicians are available for assistance via customer support line (J. Riddell, personal communication, March 4, 2009). As a result, the facility can abstain from additional support expenses offered by the manufacturer.

Overall Results

Under scenario one, the facility would not see a reduction in laundering cost and replacement cost may increase or decrease over the next five years. Based on historical data, if

BAMC maintained its current process and policies, the facility would experience a project loss of -$730.7K over the next five years. The net loss consists of the average replacement cost and current laundering. Table 5 shows the cash flow summary.

Table 5

Annual and Cumulative Cash Flows for Scenario 1

Cash inflows (outflows)	Year 1	Year 2	Year 3	Year 4	Year 5
Annual benefit impacts	0.0	0.0	0.0	0.0	0.0
Annual expense item impacts	(146.1)	(146.1)	(146.1)	(146.1)	(146.1)
Net operating inflow (outflow)	(146.1)	(146.1)	(146.1)	(146.1)	(146.1)
Asset purchase	0.0	0.0	0.0	0.0	0.0
Net CASH FLOW	**(146.1)**	**(146.1)**	**(146.1)**	**(146.1)**	**(146.1)**
Cumulative Net Cash Flow	(146.1)	(292.3)	(438.4)	(584.5)	(730.7)
Discounted Cash Flow - NPV at 2.3%	**(146.1)**	**(142.8)**	**(139.6)**	**(136.5)**	**(133.4)**
Cumulative Discounted Cash Flow	(146.1)	(289.0)	(428.6)	(565.1)	(698.5)

The implementation of scenario two would result in a negative net cash flow in the first year based on the initial purchase costs. Subsequent years result in a positive net cash flow with a cumulative cash flow in year 5 of $142K (Table 6). Figures 2 and 3 depict the cash flow for scenario 2. ROI is 36.4% and the payback period is 3.7 years. NPV at the 2.3% discount rate is $97.4K.

Table 6

Annual and Cumulative Cash Flows for Scenario 2

Cash inflows (outflows)	Year 1	Year 2	Year 3	Year 4	Year 5
Annual benefit impacts	106.6	106.6	106.6	106.6	106.6
Annual expense item impacts	(8.2)	0.0	0.0	0.0	0.0
Net operating inflow (outflow)	98.5	106.6	106.6	106.6	106.6
Asset purchase	(382.7)	0.0	0.0	0.0	0.0
Net CASH FLOW	**(284.3)**	**106.6**	**106.6**	**106.6**	**106.6**
Cumulative Net Cash Flow	(284.3)	(177.6)	(71.0)	(35.6)	142.3
Discounted Cash Flow - NPV at 2.3%	**(284.3)**	**104.2**	**101.9**	**99.6**	**97.4**
Cumulative Discounted Cash Flow	(284.3)	(180.0)	(78.1)	(21.5)	118.8

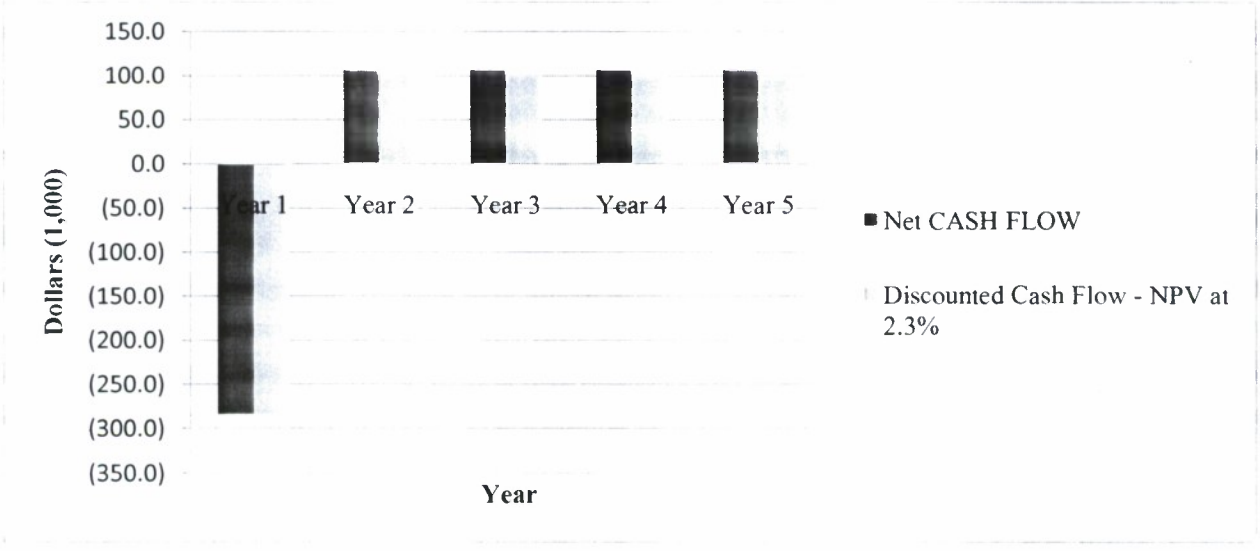

Figure 2. Annual Cash Flows for Scenario 2

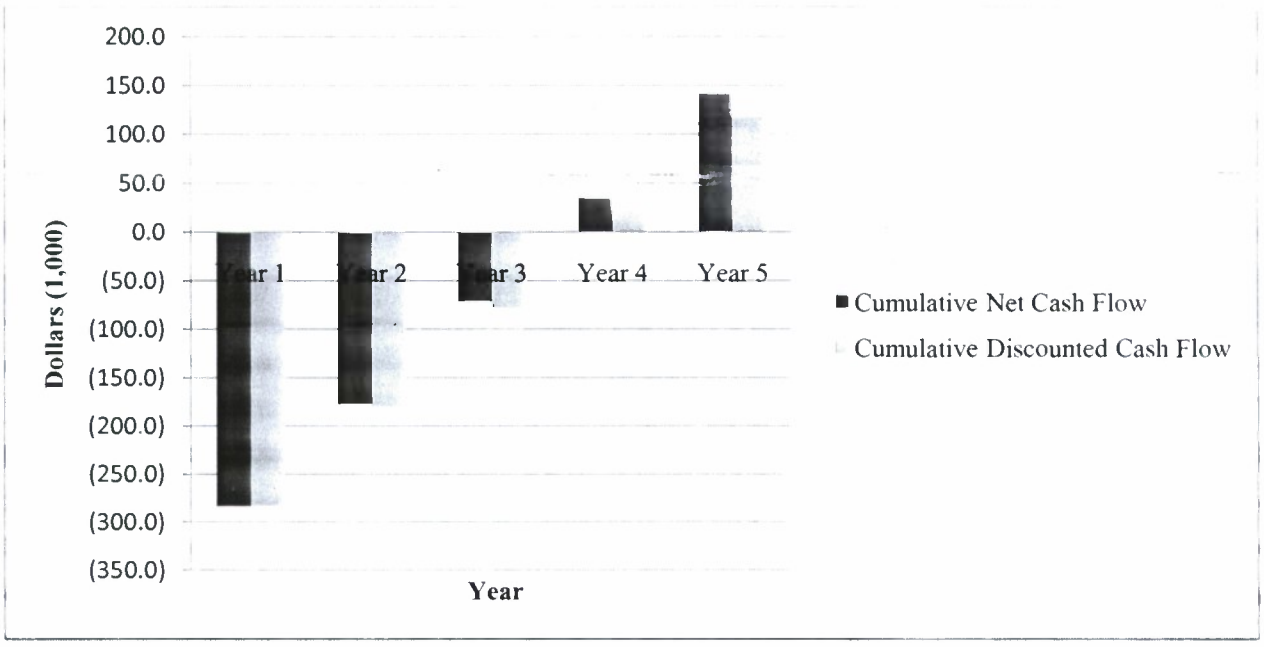

Figure 3. Cumulative Cash Flows for Scenario 2

Scenario to Scenario Comparison

Scenario one results in a net loss from year 1 to year 5, whereas, scenario two starts saving money in year 3. The ROI for scenario one is below 0% indicating a net loss opposed to scenario two, which has ROI above 0% indicating a net gain from the investment. Figure 4 and 5 illustrate a comparison of the cumulative cash flows for scenario one and two. Figure 6 is a comparison of the ROI for the scenarios.

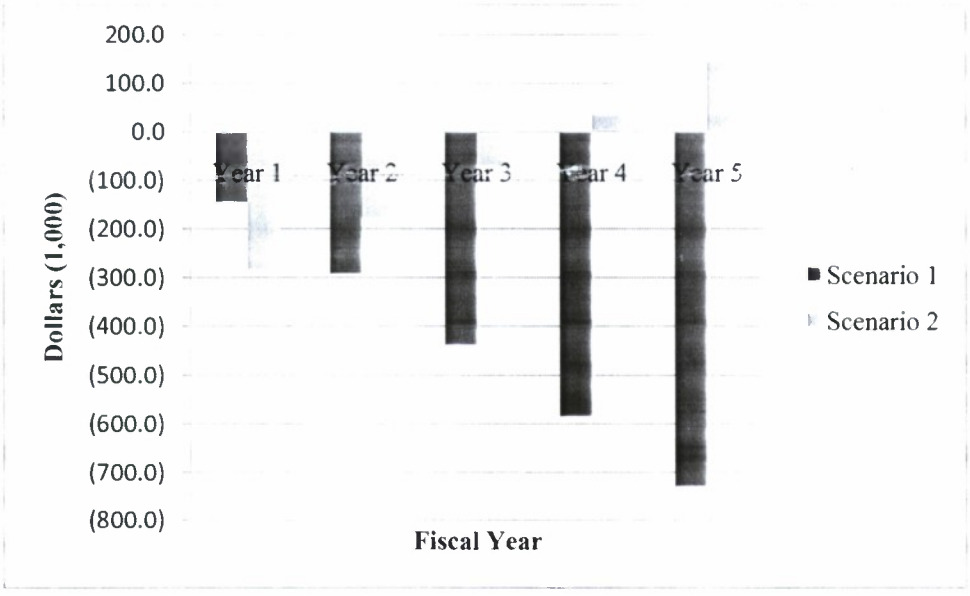

Figure 4. Cumulative Net Cash Flow

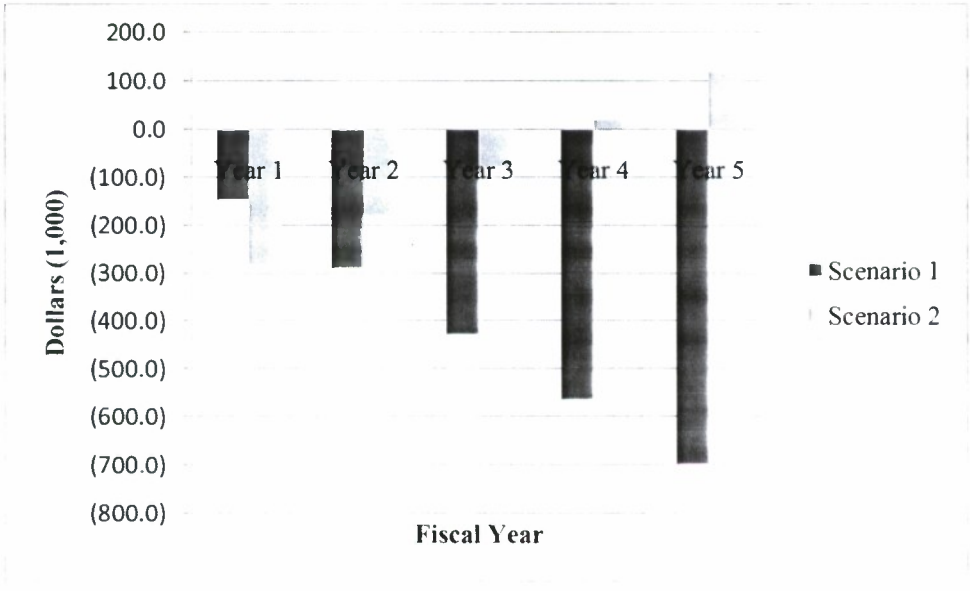

Figure 5. Cumulative Discounted Cash Flow

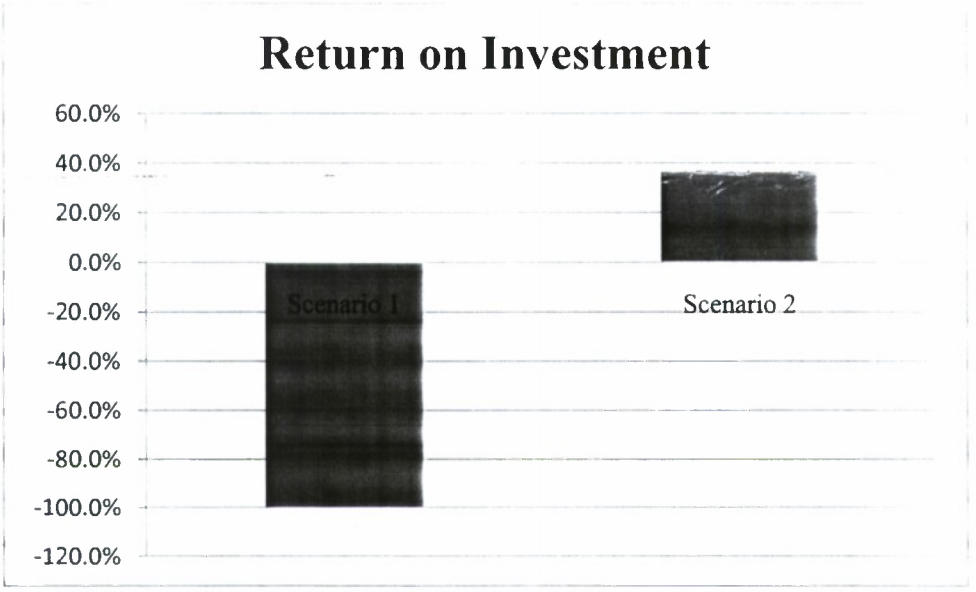

Figure 6. Return on Investment

SENSITIVITY ANALYSIS

The sensitivity analysis illustrates how changes in the variables will affect NPV. The variables used in the sensitivity analysis are laundry cost and purchase cost per scrub set. The steeper the slope, the more sensitive the scenario is to changes in the variable. Figure 7 displays the results of the sensitivity analysis.

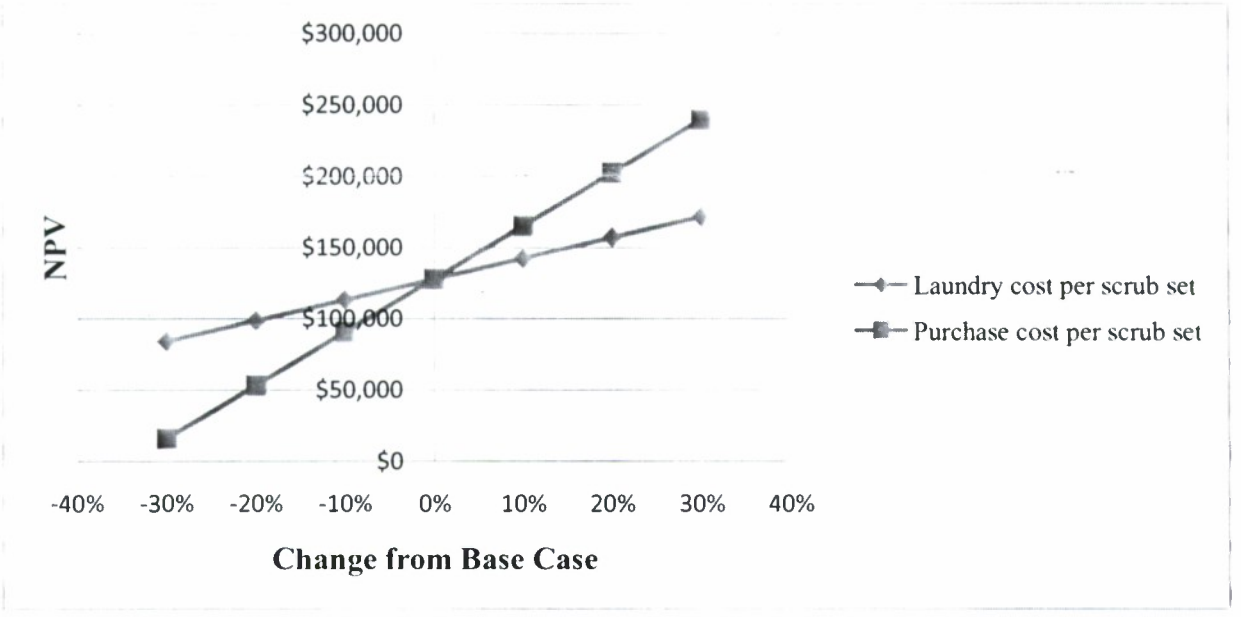

Figure 7. Sensitivity Analysis for Scenario 2

The sensitivity analysis demonstrates that the scrub management system is much more sensitive to purchase cost than to laundry cost per scrub set.

RECOMMENDATIONS AND CONCLUSIONS

The results of the business case analysis present that scenario two is the best option to reduce the annual scrub cost for BAMC. By year five, scenario two resulted in a positive cumulative cash flow of $142K and a positive ROI of 36.4%. The implementation of scenario two would 1) reduce scrub replacement cost by limiting access to only authorized users and controlling the number of scrubs issued to authorized users, 2) reduce laundering cost by reducing scrubs inadvertently placed in the soiled linen return cart, and 3) improve inventory accuracy through an automated system that tracks scrubs by user and levels at each department.

The scrub management system would supply scrubs to all areas identified in BAMC Memorandum 32-2. If BAMC decides to implement an all scrub policy where all healthcare

providers are required to wear scrubs, it is recommended that data be collected to simulate all healthcare providers wearing scrubs as the baseline for a third scenario. The data should then be analyzed like scenario one and two. Unless research shows that implementing an all scrub policy reduces the spread of MRSA or other infectious diseases, the only benefit from this scenario is a reduction in scrub replacement cost.

After taking all of these issues into consideration, the recommendation is to implement scenario two. This scenario is cost effective and allows for a more efficient issuing and laundering process.

Appendix A

BAMC Memorandum 32-2

*BAMC Memo 32-2

DEPARTMENT OF THE ARMY

BROOKE ARMY MEDICAL CENTER
Fort Sam Houston, Texas 78234-6200

BAMC MEMORANDUM
No. 32-2

1 May 2007

Clothing and Textile Materiel
CONTROL OF SCRUB SUITS

1. PURPOSE. This memorandum prescribes policies and procedures for BAMC personnel with authorization for wearing of scrub apparel, as developed by BAMC Environment of Care Committee.

2. APPLICABILITY. This memorandum applies to BAMC personnel and attached units authorized to use BAMC scrub apparel issued by Linen Supply Section, Environmental Services Branch, Logistics Division. Personnel requesting linen from the Linen Supply Section shall familiarize themselves with the contents of this memorandum.

3. REFERENCES

a. AR 40-5, Preventive Medicine.

b. AR 40-61, Medical Logistics Policies and Procedures.

c. BAMC Pam 40-2, Infection Control Manual.

d. BAMC Memo 15-1, Hospital Boards, Committees, Councils and Teams.

e. BAMC Memo 32-1, Control and Exchange of Hospital Linen.

4. EXPLANATION OF ABBREVIATION

a. CCU - Cardiac Care Unit.

b. ICU - Intensive Care Unit.

c. ISR - Institute of Surgical Research.

d. MICU - Medical Intensive Care Unit.

e. OR - Operating Room.

f. SICU - Surgical Intensive Care Unit.

*This memorandum supersedes BAMC Memorandum 32-2, dated 1 September 2004.

BAMC Memo 32-2

5. BACKGROUND. This memorandum establishes guidance for management, exchange and accountability of scrub apparel. Adherence to these procedures enhances quality linen services, reduce pilferage and prevent misuse of BAMC scrub apparel.

6. RESPONSIBILITIES.

a. The Commander will:

(1) Be the approving authority of the recommendations made by the Linen Management Committee designation of areas for issuing of BAMC scrub apparel.

(2) Be responsible for overall intensive management and accountability of BAMC scrub apparel.

b. The Linen Management Officer will:

(1) Perform all duties required in daily intensive management and accountability of BAMC scrub apparel.

(2) Approve levels of linen requests submitted by departments designated as approved for the issuing of scrub apparel.

(3) Establish and distribute linen accountability procedures to BAMC staff for additional controls and support of the linen management program at BAMC.

(4) Survey linen storage areas for security.

c. Directors Chiefs of Departments Wardmasters NCOICs designated as approved for the issuing of scrub apparel will:

(1) Appoint a responsible official for intensive management and accountability of BAMC scrub apparel and who will coordinate with the Linen Management Officer in establishing levels and requirements of scrub apparel for the department.

(2) Ensure that torn or stained scrubs are never thrown in the trash or Regulated Medical Waste. Place all torn or stained scrubs into the soiled linen bags.

(3) Scrubs required for deploying soldiers will be requested through the Linen Department, ATTN: Ms. Miller, using DA Form 3161.

(4) Scrub apparel will only be issued to those areas, at the discretion of the supervisor, designated as approved in accordance with Appendix A.

(5) Issued scrub apparel will not be worn to and from work. Wearing or possessing of BAMC issued scrub suits outside BAMC installation (gated area), or off the main Ft. Sam Houston installation, unless actively involved in direct patient care such as responding to an emergency medical service call (on duty), is prohibited and will be considered to be a misappropriation of government property.

(6) Scrub apparel is not designed and will not be used as personal protective equipment (PPE).

(7) Scrub apparel will be changed daily or more frequently when visibly soiled.

(8) Scrub apparel will only be discarded into appropriate linen hampers. Scrub apparel will not be discarded onto floors, or left on hospital equipment, in beds, lockers, bathrooms etc.

(9) Scrub apparel, tops and bottoms, will be matching (same in color) and will not be worn with any uniforms (no mixing or matching with duty whites, BDUs, or class Bs)

(10) Cover Apparel is not required, however clean green cover gowns may be worn over the scrub apparel.

7. ADMINISTRATIVE DETAILS. Areas designated as approved for the issuing of jade green scrub apparel by health care providers are as indicated in Appendix A.

BAMC Memo 32-2

APPENDIX A
Designated Areas for Scrub Issue

1. 2 East
2. 1 West
3. Cardiac Cath Labs
4. Cardiology Radiology
5. Centralized Materiel Services
6. CCUs and MICUs
7. Dermatology Clinic Minor Surgery Room
8. Emergency Room
9. Gastroenterology
10. General Surgery Minor Surgery Room
11. Hematology Oncology
12. Hemodialysis
13. House Staff On-Call from 2300 to 0700
14. Internal General Medicine
15. ISR OR
16. ISR Wards
17. Morgue
18. Ophthalmology Minor Surgery Room
19. Operating Room
20. Oral Surgery Clinic
21. Orthopedic Clinic

BAMC Memo 32-2

22 Otolaryngology Minor Surgery

23 PACU

24 Perfusion

25 Plastic Surgery Minor Surgery Room

26 Pulmonary Disease

27 Respiratory Therapy

28 Special Procedures

29 Urology Clinic Procedure Rooms

30 5th Floor, Medical Education

31 Women's Health Clinic Procedure Rooms

32 Pharmacy (Hemo Onco and PACU pharmacies only.)

33 6 East, Sleep Lab.

34 Physical Medicine

35 Physical Therapy

36 Occupational Therapy

37 Family Medicine Clinic

38 Radiation Therapy

39 Cat Scan

40 Echo Lab.

41 Endocrinology Clinic

42 Pain Clinic

43 7 East, MEU

BAMC Memo 32-2

44. Neurosurgery Clinic

45. Burn Trauma Unit

46. Camp Bullis

47. 91V School

48. Veterinary Clinic, Bldg. 2635

49. Budge Dental Clinic, Bldg. 1278

50. Rhoades Dental Clinic, Bldg. 2375

51. Clinical Investigation, Bldg. 3611

52. Vet. Support, Bldg. 3611

53. Pathology, Bldg. 3611

54. Center for Intrepid, Bldg. 3634

BAMC Memo 32-2

The proponent of this memorandum is the Chief, Logistics Division. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publication and Blank Forms) to the Cdr, Brooke Army Medical Center, ATTN: MCHT-LO, Fort Sam Houston, Texas 78234-6200.

FOR THE COMMANDER

JOHN C. SHERO
Colonel, MS
Deputy Commander for Administration

OFFICIAL:

E-Signed by BAMC
VERIFY authenticity with ApproveIt

PETER V. MARKS
Lieutenant Colonel, MS
Chief, Information Management Division

Appendix B

Inventory Value

Brooke Army Medical Cente
Page

TexTrax 2007

Inventory Value

Last Price

11/04/2007 thru 11/12/2008

Item #	Description	Last Price	Beginning Balance Qty	Beginning Balance Value	Purchases	Ragouts	Physical Adjustments	Ending Balance Qty	Ending Balance Value	Cost of Phys. Adj.
001	Bag Light Blue	5.0700	767	3,888.69		-6	-21	740	3,751.80	-106.47
002	Bag Soiled Linen	9.2500	9,733	90,030.25	1,584	-708	-729	9,880	91,390.00	-6,743.25
003	Bathrobe 5XL	13.0000	299	3,887.00	584	-1	218	1,100	14,300.00	2,834.00
004	Bathrobe L	6.9558	150	1,308.00	600	-10	-30	710	4,938.62	-208.67
005	Bathrobe XL	13.0000	534	6,942.00	600	-3	481	1,612	20,956.00	6,253.00
006	Blanket Bed Cotton	9.2000	3,111	28,621.20	240	-456	-329	2,566	23,607.20	-3,026.80
007	Blanket Green Thermal	13.3300	3,796	50,600.68	1,440	-108	-167	4,961	66,130.13	-2,226.11
008	Coat Doctor 2XL	13.0000	67	1,206.00	84	-2	-2	147	1,911.00	-26.00
009	Coat Doctor L	11.0000	160	1,760.00	12	-48	587	711	7,821.00	6,457.00
010	Coat Doctor M	11.0000	760	8,360.00	15	-39	-38	698	7,678.00	-418.00
011	Coat Doctor S	11.0000	463	5,093.00	12	-20	8	463	5,093.00	88.00
012	Coat Doctor XL	11.0000	630	6,930.00	12	-27	-8	607	6,677.00	-88.00
013	Coat PA 2XL	11.6200	8	92.96			2	10	116.20	23.24
014	Coat PA L	16.8700	160	2,699.20		-17	-4	139	2,344.93	-67.48
015	Coat PA M	16.8700	150	2,530.50		-7	-6	137	2,311.19	-101.22
016	Coat PA S	16.8700	91	1,535.17		-2	-6	83	1,400.21	-101.22
017	Coat PA XL	6.0600	73	442.38		-2	4	75	454.50	24.24
018	Coat PJ Adu 5X	11.7900	259	3,053.61	370	-8	-185	436	5,140.44	-2,181.15
019	Coat PJ Adu L	7.8600	991	7,789.26	1,392	-4	-175	2,204	17,323.44	-1,375.50
020	Coat PJ Adu M	7.8600	419	3,293.34	336	-5	-379	371	2,916.06	-2,978.94
021	Coat PJ Adu S	7.8600	442	3,474.12	336	-5	-272	501	3,937.86	-2,137.92
022	Coat PJ Adu XL	7.8600	744	5,847.84	1,440	-14	-482	1,688	13,267.68	-3,788.52
023	Coat PJ Orth L	12.3600	1,452	17,946.72	108	-5	-415	1,140	14,090.40	-5,129.40
024	Coat PJ Orth M	12.3600	341	4,214.76	46	-12	78	453	5,599.08	964.08
025	Coat PJ Orth S	12.3600	410	5,067.60	38		12	460	5,685.60	148.32
026	Coat PJ Orth XL	12.3600	2,010	24,843.60	111	-22	-353	1,746	21,580.56	-4,363.08
027	Coat PJ Ped L	2.9800	201	598.98		-1	-8	192	572.16	-23.84
028	Coat PJ Ped M	2.8800	104	299.52		-3	4	105	302.40	11.52
029	Coat PJ Ped S	2.7700	204	565.08			-19	185	512.45	-52.63
030	Glove Pocket Double	1.5000	1,493	2,737.27	1,008	-237	-371	1,893	2,839.50	-556.50
031	Glove Pocket Single	1.5000	919	1,378.50	864	-124	-1,052	607	910.50	-1,578.00
032	Gown Exam X-Ray	9.7500	6,797	66,270.75	720	-56	114	7,575	73,856.25	1,111.50
033	Gown ICU	4.9800	4,571	24,591.98	4,320	-54	-1,109	7,728	38,485.44	-5,522.82
034	Gown ICU W/Tel Po	6.3500	1,839	12,413.25	1,656	-32	-808	2,655	16,859.25	-5,130.80
035	Gown OR Green	11.1900	4,094	45,811.86		-118	-1,122	2,854	31,936.26	-12,555.18

Inventory Value

Last Price

11/04/2007 thru 11/12/2008

Item #	Description	Last Price	Beginning Balance Qty	Beginning Balance Value	Purchases	Ragouts	Physical Adjustments	Ending Balance Qty	Ending Balance Value	Cost of Phys. Adj.
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003	Bathrobe 5XL	13.0000	299	3,887.00	584	-1	218	1,100	14,300.00	2,834.00
004	Bathrobe L	6.9558	150	1,308.00	600	-10	-30	710	4,938.62	-208.67
005	Bathrobe XL	13.0000	534	6,942.00	600	-3	481	1,612	20,956.00	6,253.00
006	Blanket Bed Cotton	9.2000	3,111	28,621.20	240	-456	-329	2,566	23,607.20	-3,026.80
007	Blanket Green Thermal	13.3300	3,796	50,600.68	1,440	-108	-167	4,961	66,130.13	-2,226.11
008	Coat Doctor 2XL	13.0000	67	1,206.00	84	-2	-2	147	1,911.00	-26.00
009	Coat Doctor L	11.0000	160	1,760.00	12	-48	587	711	7,821.00	6,457.00
010	Coat Doctor M	11.0000	760	8,360.00	15	-39	-38	698	7,678.00	-418.00
011	Coat Doctor S	11.0000	463	5,093.00	12	-20	8	463	5,093.00	88.00
012	Coat Doctor XL	11.0000	630	6,930.00	12	-27	-8	607	6,677.00	-88.00
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015	Coat PA M	16.8700	150	2,530.50		-7	-6	137	2,311.19	-101.22
016	Coat PA S	16.8700	91	1,535.17		-2	-6	83	1,400.21	-101.22
017	Coat PA XL	6.0600	73	442.38		-2	4	75	454.50	24.24
018	Coat PJ Adu 5X	11.7900	259	3,053.61	370	-8	-185	436	5,140.44	-2,181.15
019	Coat PJ Adu L	7.8600	991	7,789.26	1,392	-4	-175	2,204	17,323.44	-1,375.50
020	Coat PJ Adu M	7.8600	419	3,293.34	336	-5	-379	371	2,916.06	-2,978.94
021	Coat PJ Adu S	7.8600	442	3,474.12	336	-5	-272	501	3,937.86	-2,137.92
022	Coat PJ Adu XL	7.8600	744	5,847.84	1,440	-14	-482	1,688	13,267.68	-3,788.52
023	Coat PJ Orth L	12.3600	1,452	17,946.72	108	-5	-415	1,140	14,090.40	-5,129.40
024	Coat PJ Orth M	12.3600	341	4,214.76	46	-12	78	453	5,599.08	964.08
025	Coat PJ Orth S	12.3600	410	5,067.60	38		12	460	5,685.60	148.32
026	Coat PJ Orth XL	12.3600	2,010	24,843.60	111	-22	-353	1,746	21,580.56	-4,363.08
027	Coat PJ Ped L	2.9800	201	598.98		-1	-8	192	572.16	-23.84
028	Coat PJ Ped M	2.8800	104	299.52		-3	4	105	302.40	11.52
029	Coat PJ Ped S	2.7700	204	565.08			-19	185	512.45	-52.63
030	Glove Pocket Double	1.5000	1,493	2,737.27	1,008	-237	-371	1,893	2,839.50	-556.50
031	Glove Pocket Single	1.5000	919	1,378.50	864	-124	-1,052	607	910.50	-1,578.00
032	Gown Exam X-Ray	9.7500	6,797	66,270.75	720	-56	114	7,575	73,856.25	1,111.50
033	Gown ICU	4.9800	4,571	24,591.98	4,320	-54	-1,109	7,728	38,485.44	-5,522.82
034	Gown ICU W/Tel Po	6.3500	1,839	12,413.25	1,656	-32	-808	2,655	16,859.25	-5,130.80
035	Gown OR Green	11.1900	4,094	45,811.86		-118	-1,122	2,854	31,936.26	-12,555.18

Inventory Value

Last Price

11/04/2007 thru 11/12/2008

Item #	Description	Last Price	Beginning Balance Qty	Beginning Balance Value	Purchases	Ragouts	Physical Adjustments	Ending Balance Qty	Ending Balance Value	Cost of Phys. Adj.
036	Pad Bed	5.5300	3,708	20,505.24	1,968	-195	-380	5,101	28,208.53	-2,101.40
037	Pillow Case Green	1.7750	5,606	9,950.65	1,008	-507	1,059	7,166	12,719.65	1,879.73
038	Pillow Case White	0.9667	5,837	5,652.55	5,040	-1,663	-2,050	7,164	6,925.44	-1,981.74
039	Sheet Caudal	7.4900	0	0.00				0	0.00	0.00
040	Sheet Eye	3.3334	2,813	9,376.85		-7	-49	2,757	9,190.18	-163.34
041	Sheet Fitted	9.3500	3,735	19,061.20	5,622	-243	-488	8,626	80,653.10	-4,562.80
042	Sheet Green	6.4067	5,302	33,968.32	2,905	-1,183	-1,914	5,110	32,738.24	-12,262.42
043	Sheet White	5.3750	9,208	49,493.00	3,578	-470	-145	12,171	65,419.13	-779.38
044	Shirt OR 2XL	4.4400	2,746	12,192.24	792	-99	-554	2,885	12,809.40	-2,459.76
045	Shirt OR 3XL	4.8100	2,240	10,774.40	792	-64	-470	2,498	12,015.38	-2,260.70
046	Shirt OR 4XL	5.1800	2,116	10,960.88	264	-4	-135	2,241	11,608.38	-699.30
047	Shirt OR 5XL	5.5500	1,009	5,599.95	264	-1	306	1,578	8,757.90	1,698.30
048	Shirt OR L	3.7000	2,080	7,696.00	2,112	-425	-1,005	2,762	10,219.40	-3,718.50
049	Shirt OR M	3.7000	2,453	9,076.10	2,112	-429	-762	3,374	12,483.80	-2,819.40
050	Shirt OR S	3.7000	1,418	5,246.60	528	-240	-451	1,255	4,643.50	-1,668.70
051	Shirt OR XL	3.7000	2,019	7,470.30	3,012	-466	-953	3,612	13,364.40	-3,526.10
052	Towel Bath White	1.6783	16,689	28,010.82	20,136	-5,813	-7,637	23,375	39,230.26	-12,817.18
053	Towel Hand Green	1.2300	17,675	21,740.25	26,400	-2,344	-13,388	28,343	34,861.89	-16,467.24
054	Trouser OR 2XL	4.4400	2,143	9,514.92	792	-85	-548	2,302	10,220.88	-2,433.12
055	Trouser OR 3XL	5.1800	1,831	9,484.58	792	-15	-65	2,543	13,172.74	-336.70
056	Trouser OR 4XL	5.1800	1,554	8,049.72	288		-111	1,731	8,966.58	-574.98
057	Trouser OR 5XL	5.5500	1,375	7,631.25	264		46	1,685	9,351.75	255.30
058	Trouser OR L	3.7000	2,551	9,438.70	2,112	-199	-1,051	3,413	12,628.10	-3,888.70
059	Trouser OR M	3.7000	2,458	9,094.60	2,112	-185	-607	3,778	13,978.60	-2,245.90
060	Trouser OR S	3.7000	1,561	5,775.70	480	-116	-385	1,540	5,698.00	-1,424.50
061	Trouser OR XL	3.7000	2,020	7,474.00	3,000	-275	-1,348	3,397	12,568.90	-4,987.60
062	Trouser PJ A 5X	9.9700	324	3,230.28	348	-4	-196	472	4,705.84	-1,954.12
063	Trouser PJ A L	6.6500	887	5,898.55	1,391	-6	-499	1,773	11,790.45	-3,318.35
064	Trouser PJ A M	6.6500	447	2,972.55	312	-5	-422	332	2,207.80	-2,806.30
065	Trouser PJ A S	6.6500	328	2,181.20	336	-4	-79	581	3,863.65	-525.35
066	Trouser PJ A XL	6.6500	637	4,236.05	1,442	-16	-819	1,244	8,272.60	-5,446.35
067	Trouser PJ O L	3.7500	642	2,407.50	172	-3	16	827	3,101.25	60.00
068	Trouser PJ O M	3.7500	256	960.00	47	-3	-61	239	896.25	-228.75
069	Trouser PJ O S	3.7500	242	907.50	38	-2	2	280	1,050.00	7.50
070	Trouser PJ O XL	3.7500	1,094	4,102.50	180	-10	-208	1,056	3,960.00	-780.00

Appendix C

Top Linen Losses

MCHE-LOH (15) 13 November 2008

MEMORANDUM FOR LINEN MANAGEMENT COMMITTEE

SUBJECT: Inventory Linen Losses

1. The following is the total linen loss for the past year (11/04/07 thru 11/12/08) and the top 5 dollar items that came up missing (equating to 58% of loss):

TOTAL LOSS =	**($163,843.06)**
TOTAL GAIN =	**$ 22,371.21**
GRAND TOTAL LOSS =	**($141,471.85)**

1. Scrubs (Shirts & Pants all sizes)	$ 28,056.36
2. Towel, Hand (13,388 @ $1.2300)	$ 16,467.24
3. Towel, Bath (7,637 @ $1.6783)	$ 12,817.18
4. Sheet, Green (1,194 @ $6.4067)	$ 12,262.42
5. Gown, OR (1,112 @ $11.19)	$ 12,555.18
TOP DOLLAR ITEM TOTAL =	**$ 82,158.38**

2. Losses are due to patients and staff leaving with linen, such as scrubs, bath and hand towels. Also improper disposal of linen has been noted such as linen being thrown in regular trash and regulated medical waste.

3. To preclude high losses as reported this year, the following is being established:

a. Logistics is working with Department Chiefs of affected areas to reevaluate scrub policy and enforcement.

b. Ms. Miller and/or Mr. Kemp will provide education to staff by providing initial training at the Newcomers Briefing and again quarterly at the Logistics Training.

JAMES B. UPTON
LTC, MS
Chief, Logistics Division

MCHE-LOH 30 Nov 07

MEMORANDUM FOR Commander, Brooke Army Medical Center, Fort Sam Houston, TX, 78234

SUBJECT: Inventory Linen Losses

1. The following is the total linen loss for the past year 3 Nov 06 through 2 Nov 07.

a. Total Loss = ($161,911.48)
b. Total Gain = $ 46,897.72
c. Net Loss = ($115,013.76)

2. The top five dollar items that came up missing (equating to 89% of loss):

a. Scrubs (Shirts & Pants all sizes)	$ 33,677.77
b. Towel, Hand (21,973 @ $1.2300)	$ 27,026.79
c. Towel, Bath (12,643 @ $1.6784)	$ 21,220.01
d. Sheet, Fitted (2,248 @ $5.1034)	$ 11,472.44
e. Pad, Bed (1,617 @ $5.53)	$ 8,942.01
Top Dollar Item Total	$102,339.02

3. The net losses for the FY represent a 37% decrease from last year. Losses are believed to be due to patients and staff leaving with linen, such as scrubs, bed pads and bath and hand towels. Also improper disposal of linen has been noted such as linen being thrown in regular trash and regulated medical waste.

4. To preclude high losses in the future, the Logistics Division is working with Department Chiefs to establish a multi-disciplinary team to reevaluate the scrub policy and enforcement as well as procedural changes which could reduce our loss.

5. The point of contact is Ms. Gloria Miller, Chief, Environmental Services, at (210) 916-1441.

JAMES B. UPTON
LTC, MS
Chief, Logistics Division

Sir,
Net Loss
is ~ 12% of
inventory.
OBJ is to be 410%.
FYI, Bruce

MCHE-LOH (15) 17 November 2006

MEMORANDUM FOR LINEN MANAGEMENT COMMITTEE

SUBJECT: Inventory Linen Losses

1. The following is the total linen loss for the past year (11/05/05 thru 11/02/06) and the top 5 dollar items that came up missing (equating to 66% of loss):

TOTAL LOSS = ($204,928.26)
TOTAL GAIN = $ 8,601.75
GRAND TOTAL LOSS = ($196,326.51)

1. Blanket, Green Thermal (815 @ $13.33)	$ 10,863.95
2. Scrubs (Shirts & Pants all sizes)	$ 36,245.94
3. Towel, Bath (18,455 @ $1.5984)	$ 29,498.47
4. Towel, Hand (36,773 @ $1.1717)	$ 43,086.92
5. Gown, ICU (1,772 @ $5.38)	$ 9,533.36
TOP DOLLAR ITEM TOTAL =	**$129,228.64**

2. Losses are due to patients and staff leaving with linen, such as scrubs, blankets, ICU gowns, and bath and hand towels. Also improper disposal of linen has been noted such as linen being thrown in regular trash and regulated medical waste.

3. To preclude high losses as reported this year, the following is being established:

a. Logistics is working with Department Chiefs of affected areas to reevaluate scrub policy and enforcement.

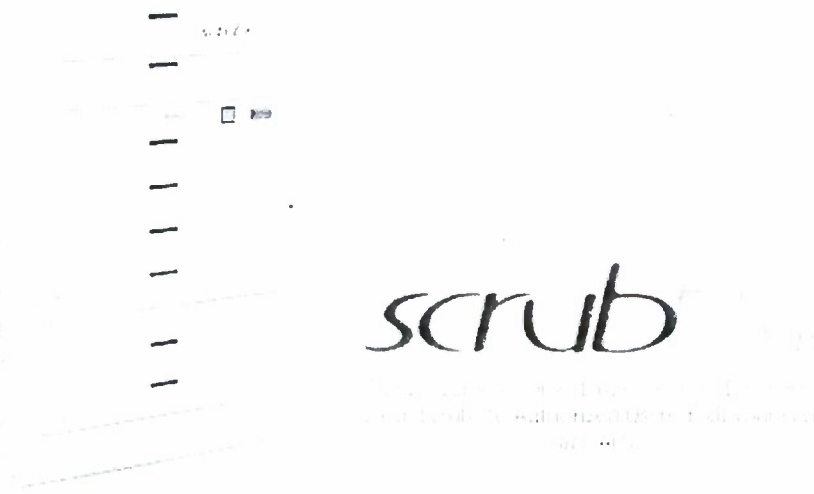
b. Ms. Miller and/or Mr. Kemp will provide education to staff by providing initial training ~~at the Newcomers Briefing~~ and again quarterly at the Logistics Training.

JAMES B. UPTON
LTC, MS
Chief, Logistics Division

Appendix D

Dispenser/Receiver Unit

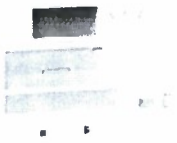
MEET *scrubEx®* | *scrubEx® LV (Dispenser)*



- Steel Construction with 2 main moving parts; design patented for linen – scrubs remain stationary
- 128 Sets, Accommodates 170 Users a Day with 2 Fills per Day
- Dispensing Time – 5.4 seconds with no delays between users
- Short Restocking Time – 10 Minutes
- Small Footprint, Fits Practically Anywhere
- Footprint – 16.5"D x 52"W x 78"H

- User Access – Hospital ID, Bar Code, Magnetic Stripe, Proximity; Keypad Backup
- Communications – Thru Hospital Network, Communicates in "real-time" over redundant paths from machine to machine and machine to System Controller

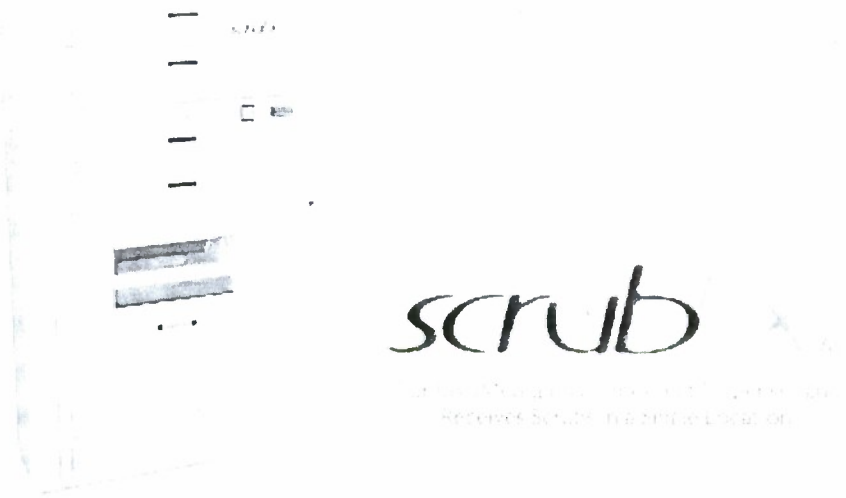
MEET *scrubEx*® | *scrubEx*® *LV (Receiver)*



- Steel Construction with secure deposit technology and "packer" option to compress soiled scrubs for increased capacity
- Receives up to 150 Scrub Suit Sets Between Unloads with Optional "Packer"
- Works with LV Dispenser but can be Located Separately
- Captures Video Record of Each Deposit
- Small Footprint, Fits Practically Anywhere
- Footprint – 16.5"D x 51"W x 78"H

- User Access – Hospital ID, Bar Code, Magnetic Stripe, Proximity; Keypad Backup
- Communications – Thru Hospital Network, Communicates in "real-time" over redundant paths from machine to machine and machine to System Controller

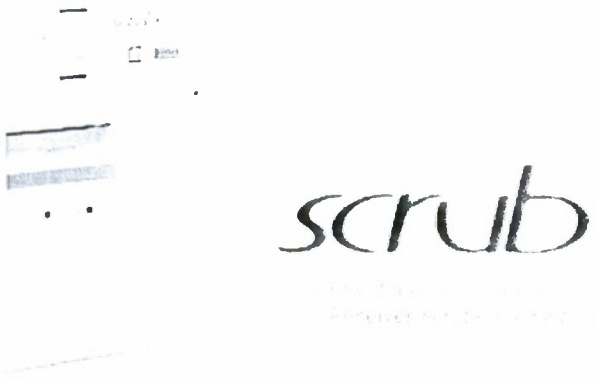
MEET *scrubEx®* | *scrubEx® MV*



- Steel Construction with 1 main moving part; design patented for linen – scrubs remain stationary
- 64 Sets, Accommodates 85 Users a Day with 2 Fills per Day
- Dispensing Time – 5.4 seconds with no delays between users
- Short Restocking Time – 7 Minutes
- Receives up to 60 Scrub Suit Sets Between Unloads
- Captures Video Record of Each Deposit
- Small Footprint, Fits Practically Anywhere
- Footprint – 16.5"D x 52"W x 78"H

- User Access – Hospital ID, Bar Code, Magnetic Stripe, Proximity; Keypad Backup
- Communications – Thru Hospital Network, Communicates in "real-time" over redundant paths from machine to machine and machine to System Controlier

MEET *scrubEx®* | *scrubEx® SV*



- Steel Construction with 1 main moving part; design patented for linen – scrubs remain stationary
- 32 Sets, Accommodates 40 Users a Day with 2 Fills per Day
- Dispensing Time – 5.4 seconds with no delays between users
- Short Restocking Time – 5 Minutes
- Receives up to 40 Scrub Suit Sets Between Unloads
- Captures Video Record of Each Deposit
- Small Footprint, Fits Practically Anywhere
- Footprint – 16.5"D x 52"W x 78"H

- User Access – Hospital ID, Bar Code, Magnetic Stripe, Proximity; Keypad Backup
- Communications – Thru Hospital Network, Communicates in "real-time" over redundant paths from machine to machine and machine to System Controller

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